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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,009	03/26/2004	Clinton J. McAllister	7349-000006	2664

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HARNESS, DICKY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

MERKLING, MATTHEW J

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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10/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,009	MCALLISTER ET AL.	
	Examiner	Art Unit	
	Matthew J. Merkling	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-9,13,14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-9,13,14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 9 is objected to because of the following informalities: In claim 9, the phrase "the connector housing" appears to be a typographical error and is intended to be "the converter housing". The examiner will treat it as such for purposes of this examination. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 4,261,170) in view of Nilsson (WO 99/27240 A1) and Brush et al. (US 2002/0150518).

Regarding claims 1 and 6, Suzuki discloses a catalytic converter assembly (Fig. 2) comprising;

catalytic conversion components (col. 2 lines 58-60, (6));

a one piece cast (col. 4 lines 37-40) catalytic converter housing (converter casing, col. 2 line 41, (5), or Fig. 21 (214)) with an integral end cone along one

end thereof (see Figs. 2 and 21), an opening (meeting plane, (13, 236)) for inserting the conversion components; and

a second end cone (pipe, (3, 212)) which is welded to said catalytic converter housing such that a weld joint is formed between said housing and said second end cone (col. 8 lines 9-14).

Suzuki, however, fails to disclose a mantle having a hollow body portion which is disposed within and extends substantially the entire length of the converter housing for receiving the catalytic conversion components, said mantle having a transverse lip extending outwardly from said body portion.

Nilsson also discloses a catalytic converter for treatment of exhaust gasses from a combustion engine.

Nilsson teaches a mantle (Fig. 2, (14)) disposed within a catalytic converter housing (12) for receiving a filtering substrate (monolith, (13)) and the mantle including an outwardly extending lip (17) which is sandwiched between the catalytic converter housing (manifold, (12)) and end cone (10). Nilsson teaches this as a preferable way of maintaining a substrate securely in a housing such that an excessively heavy mantle that is common in the art, does not have to be used (page 3, lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the mantle with the outward extending lip between the converter housing and the end cone, as in Nilsson, to the catalytic converter apparatus of Suzuki as a preferable configuration for holding the filtering

substrate in place during operation without providing an excessively heavy mantle that is commonly used in the art.

Furthermore, Suzuki, as modified by Nilsson, fails to teach a weld joint occurring along a junction defined by the catalytic converter housing, end cone, and mantle which forms an airtight seal.

Brush also discloses a catalytic converter assembly.

Brush teaches a single weld that incorporates a mantle (retainer ring, 44), end cone (78) and catalytic converter housing (shell, 70) in order for the welding to be easily implemented into production without increasing costs, labor, or impeding manufacturing efficiency and to ensure a fluid tight seal (paragraph 49).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a single weld incorporating the mantle, end cone, and catalytic converter housing, as in Brush, in the catalytic converter apparatus of modified Suzuki in order to be easily implement the welding into production without increasing costs, labor, or impeding manufacturing efficiency and to ensure a fluid tight seal.

Regarding claim 4, Suzuki further discloses the integral end cone includes a muffler mounting flange (col. 7 lines 38-40, col. 2 line 65 – col. 3 line 2, (246)).

Regarding claim 7, Suzuki further discloses said second end cone integrally extends from an exhaust manifold (See Fig. 21), wherein said second end cone and said exhaust manifold are cast as a single piece (col. 4 lines 37-40).

Regarding claim 9, Suzuki, as modified by Nilsson and Brush above, further discloses the catalytic converter comprises a mounting mat (elastic member, (152)) disposed adjacent an inner wall of said converter housing (Fig. 21) and said hollow body portion (as modified by Nilsson) of the mantle on the other side (see Fig. 21).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 4,261,170) in view of Nilsson (WO 99/27240 A1) and Brush et al. (US 2002/0150518) as applied to claim 1 above, and further in view of Perrin et al. (US 6,508,981).

Regarding claim 3, Suzuki, as discussed in claim 2 above, discloses all of the claim limitations, but fails to teach the catalytic converter housing with integral end cone casting is formed from SiMo iron.

Perrin discloses metals that are useful in high temperature service such as exhaust manifolds and catalytic converters.

Perrin teaches SiMo irons in order to improve high temperature strength, resist thermal fatigue and improve high temperature oxidation resistance (col. 1 lines 44-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the SiMo alloy of Perrin in the catalytic converter housing with integral end cone casing of Suzuki to utilize the high temperature strength, resistance to thermal fatigue and improvement of high temperature oxidation resistance of SiMo.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 4,261,170) in view of Nilsson (WO 99/27240 A1) and Brush et al. (US 2002/0150518) as applied to claim 1 above, and further in view of Nagami et al. (US 5,952,109).

Regarding claim 8, Suzuki, as discussed in claim 1 above, discloses all of the claim limitations including an annular flanges on the end cone and converter housing (col. 4 line 64 – col. 5 line 1) that are welded together (col. 8 lines 9-14), but fails to teach the annular flange having an inwardly angled portion and said second end cone includes a complimentary annular flange having an inwardly angled portion, whereby upon joining said second end cone to said converter housing an annular recess is provided to define said weld joint.

Nagami also discloses welding between two metal bodies.

Nagami teaches inwardly angled edges (Fig. 2, (2b, 3a) of two butting pieces of metal (2, 3) that are to be joined via welding as a preferable configuration in order to provide an edge combination for a butt welding between edges of metal bodies permitting a relatively wide range of allowance in accuracy of edge preparation (col. 2 lines 7-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the inward angled edges of two metal bodies of Nagami, to the annular flanges of Suzuki in order to provide an edge combination for a butt welding between edges of metal bodies permitting a relatively wide range of allowance in accuracy of edge preparation.

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6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 4,261,170), Nilsson (WO 99/2727240) and Brush et al. (US 2002/0150518) as applied to claim 1 above, and further in view of Nagami et al. (US 5,952,109).

Regarding claim 13, modified Suzuki, as discussed in claim 12 above, discloses all of the claim limitations including an annular flanges on the end cone and converter housing (col. 4 line 64 – col. 5 line 1) that are welded together (col. 8 lines 9-14), but fails to teach the annular flange having an inwardly angled portion and said second end cone includes a complimentary annular flange having an inwardly angled portion, whereby upon joining said second end cone to said converter housing an annular recess is provided to define said weld joint.

Nagami also discloses welding between two metal bodies.

Nagami teaches inwardly angled edges (Fig. 2, (2b, 3a) of two butting pieces of metal (2, 3) that are to be joined via welding as a preferable configuration in order to provide an edge combination for a butt welding between edges of metal bodies permitting a relatively wide range of allowance in accuracy of edge preparation (col. 2 lines 7-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the inward angled edges of two metal bodies of Nagami, to the annular flanges of modified Suzuki in order to provide an edge combination for a butt welding between edges of metal bodies permitting a relatively wide range of allowance in accuracy of edge preparation.

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7. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 4,261,170) in view of Nilsson (WO 99/27240 A1).

Regarding claim 14, Suzuki discloses a method of manufacturing a catalytic converter assembly comprising:

a) providing catalytic conversion components (cylindrical casing, monolithic catalyst, etc. col. 2 lines 41-44);

b) providing a one piece catalytic converter housing (Fig. 21, (214) and integral end cone (manifold, 212), said housing including an opening (upstream end 217, 236) through which said catalytic conversion components are inserted (col. 7 lines 25-57);

d) disposing the catalytic converter components (216) within the opening of said catalytic converter housing (See Fig. 21);

e) attaching a second end cone (212) portion to said catalytic converter housing to capture the catalytic converter within said catalytic converter assembly (See Fig. 21, col. 7 lines 18-24); and

f) welding the second end cone to said one piece catalytic converter housing (214) and integral end cone (212) to form the catalytic converter assembly (col. 8 lines 9-14).

Suzuki, however, fails to disclose:

c) providing a mantle having a hollow body portion which is disposed within and extends substantially the entire length of the converter housing for receiving the catalytic conversion components, said mantle having a transverse lip extending outwardly from said body portion.

Nilsson also discloses a catalytic converter for treatment of exhaust gasses from a combustion engine.

Nilsson teaches a mantle (Fig. 2, (14)) disposed within a catalytic converter housing (12) for receiving a filtering substrate (monolith, (13)) and the mantle including an outwardly extending lip (17) which is sandwiched between the catalytic converter housing (manifold, (12)) and end cone (10). Nilsson teaches this as a preferable way of maintaining a substrate securely in a housing such that an excessively heavy mantle that is common in the art, does not have to be used (page 3, lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the mantle with the outward extending lip between the converter housing and the end cone, as in Nilsson, to the catalytic converter apparatus of Suzuki as a preferable configuration for holding the filtering substrate in place during operation without providing an excessively heavy mantle that is commonly used in the art.

Regarding claim 16, Suzuki, as discussed in claim 14 above, further discloses an end cone (212) integrally extends from an exhaust manifold and the end cone and exhaust manifold are cast as a single piece (col. 8 lines 9-14).

Response to Arguments

Drawings

8. The drawings were received on 9/17/07. These drawings are acceptable.

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Specification

9. The objections to the specification have been withdrawn in light of the amendments.

35 USC § 112 Rejections

10. The rejections under 35 USC § 112 have been withdrawn in light of the amendments.

35 USC § 103(a) Prior Art Rejections

11. Applicant's arguments filed 9/17/07 have been fully considered but they are not persuasive.

Applicant argues that there is no motivation for utilizing a mantle within a catalytic converter housing including a lip that is captured between the catalytic converter housing and an end cone. The examiner respectfully disagrees. As stated above and in the previous office action, Nilsson discloses advantages to using a lip extending from a mantle that holds a catalytic substrate. Using this configuration provides a light weight, stable and functional support for a catalytic substrate in a housing.

Applicant also argues that Brush teaches a ring which is not of substantial length. The examiner respectfully disagrees. The length or size of the ring is irrelevant to the manner in which Brush was applied. The examiner modified Suzuki with the welded, air tight sealing means of Brush and not the size or function of the ring, as Applicant argues.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MJM



Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700